



SmartPID M5 Mini

Quick Start Guide

<https://smartpid.com>

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SmartPID M5 mini Concept

The basic idea behind SmartPID m5 mini controller is to separate the control unit from the power relays. This provides great flexibility, reduces wirings complexity.

SmartPID M5 can run all the control process (temperature and humidity control) autonomously and drives wirelessly a smart relay that is connected to load and can be locate in a different place.

At the same time SmartPID m5 is cloud connected via wifi and can be fully controlled from remote web app.

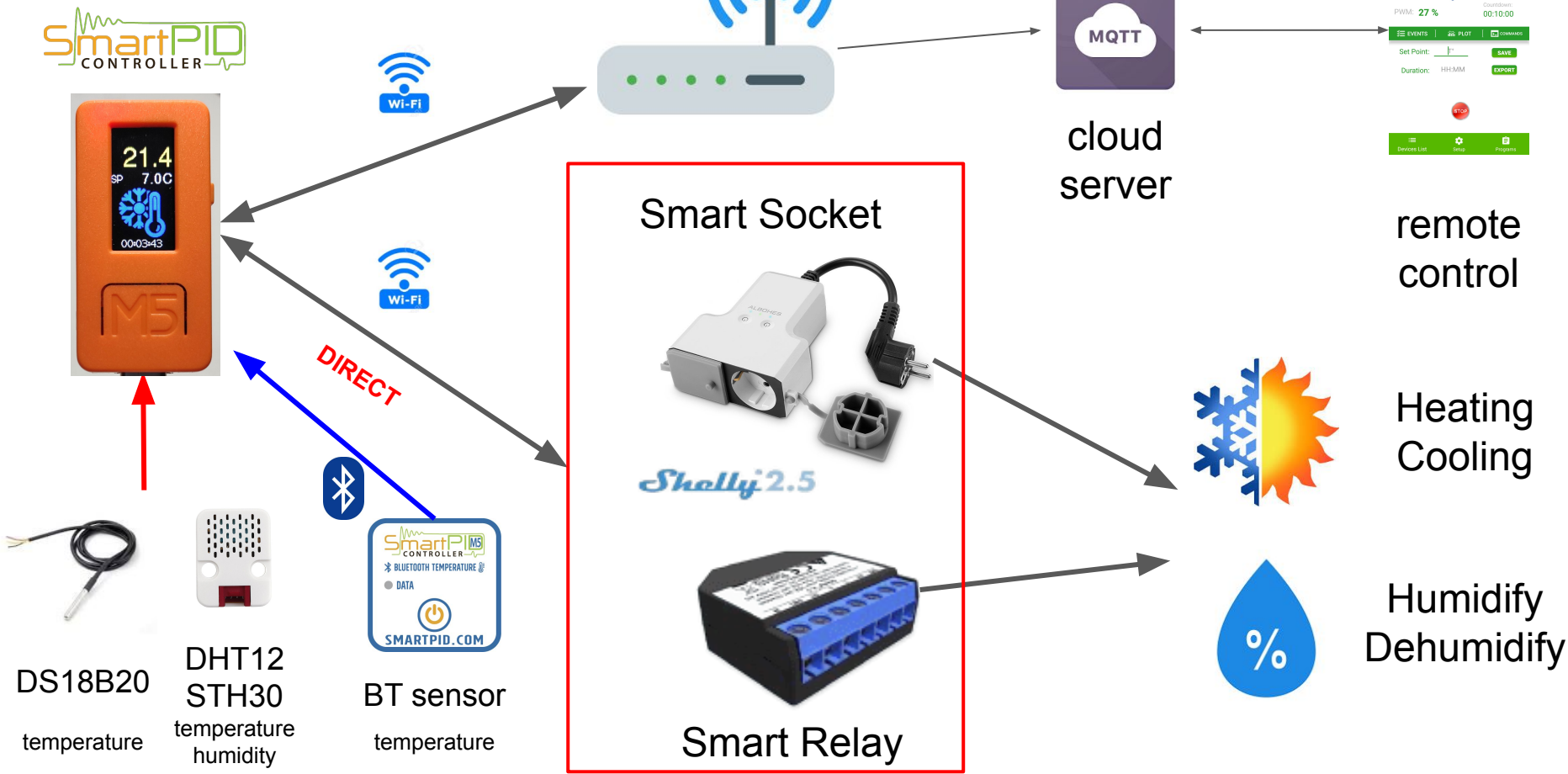
Despite the compact size, SmartPID m5 is feature rich with different control mode and algorithms, support of different sensor types, brilliant display with simple GUI and easy setup.



Main Characteristics

- Temperature and Humidity control
- 3 Control mode
 - heating/cooling/thermostatic
 - humidify/dehumidify/igrostatic
- 3 working mode
 - Monitor
 - ON/OFF control with hysteresis
 - Profile (10 ramp/soak points)
- Selectable sensor type
 - DS18B20 (digital temperature probe)
 - DHT12 (combined temp./humidity)
 - SHT30 (combined temp./humidity)
 - bluetooth wireless temperature
- Configurable Hysteresis
- Fridge delay protection
- Probe calibration
- Celsius/Fahrenheit
- Brilliant OLED display and GUI
- 3 buttons operations
- Simple set up and menu config
- USB-C power supply
- Status led indication
- 4 pin port for sensor
- WiFi connection to Cloud server
 - remote control web app
- WiFi connection to smart relay
 - Shelly 2.5 relay connection
 - Dual channel 10A relay
 - Power monitor
- OTA FW upgrade
- Real Time Clock
- BackUp internal battery

Logical Architecture



Probe types support

Sensor Type	Measurements	Technical characteristics
DS18B20	temperature	-55°C to +125°C $\pm 0.5^\circ\text{C}$
DHT12	temperature humidity	-20 ~ 60 °C / $\pm 0.2^\circ\text{C}$ 20 ~ 95 %RH / $\pm 0.1\%$
SHT30	temperature humidity	-40 ~ 120 °C / $\pm 0.2^\circ\text{C}$ 10 ~ 90 %RH / $\pm 2\%$
BT-05	bluetooth temperature sensor	-20°C~+60°C $\pm 0.5^\circ\text{C}$ 12 months battery



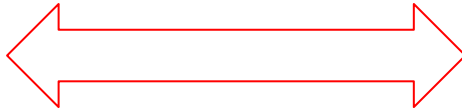
Relay Connection

Dual channel 10A relay with power monitor

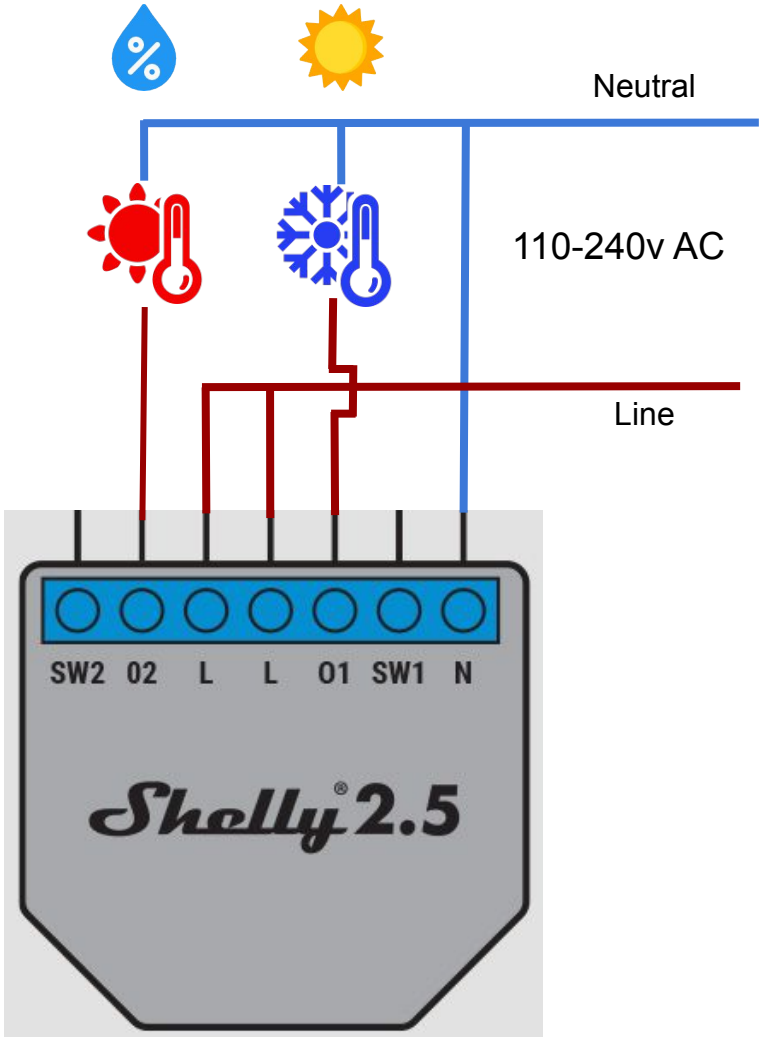
Possibility to add manual switch



Rest API (Http) for wireless local control



Easy Pairing !



SmartPID M5 operations and connections



Status Led

ON/OFF button

Menu navigation
Parameter modification
Set Point modification

Menu selection
Long press → menu back
Pause/Resume



Environment Hat port

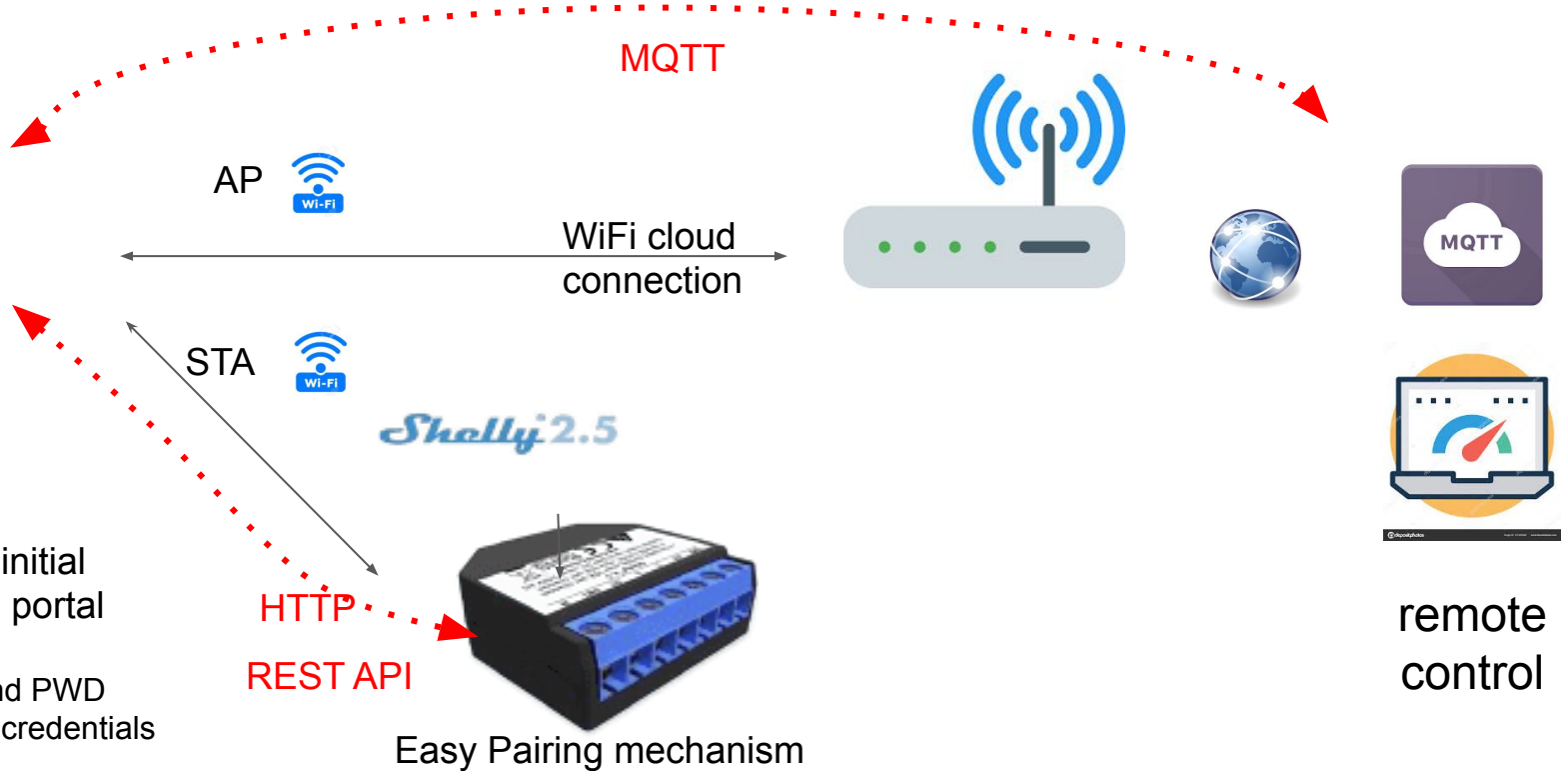
USB Type C port
power supply

Sensor Port
DS18B20
DHT12
SHT30



Network Architecture

Shelly 2.5 connects directly to the SmartPID M5 mini via WiFi.
SmartPID M5 mini connects to router and sends MQTT notification to cloud.



Provisioning and initial config via captive portal

- WiFi SSID and PWD
- Cloud server credentials

Easy Pairing mechanism

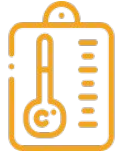
remote control

SmartPID M5 mini menu



Start

select temperature or humidity set point and start the control process



Monitor

temperature or humidity are monitored. With left button is possible to activate the output or relay (heating/cooling) manually



Setup

- select control mode (heating/cooling/thermostatic/Humidify/Dehumidify/igrostatic)
- select sensor type
- select sensor port (external / env hat)
- configure default set point(temp&humidity)
- configure hysteresis
- configure fridge delay timer
- configure sample time
- configure probe calibration
- configure temperature unit (celsius/fahrenheit)
- clock set



WIFI

- Check wifi connection status
- Select WiFi connection mode (AP/client/Auto)
- Check WiFi parameters (SSID/PWD/IP)
- Check Server parameters (MQTT address/credentials)



Pair

start pairing procedure with Shelly 2.5 relay
Start Bluetooth temperature sensor pairing



Profile

- add/edit/delete temperature profiles
- up to 10 different profiles with up to 10 ramp/soak valued



Info

- display SW version
- start SW upgrade over the air (OTA)
- display serial number
- display status of various components (wifi,cloud server, relay)

WiFi Configuration

Scan available WiFi network with smartphone or laptop PC.

Connect to WiFi network smartpid_xxxxxxx with password **smartpid!**

Open in the browser any page and you will be redirected to the input form (in case of problem open directly the page 192.168.4.1).

Fill the form with relevant data and press save.

SmartPID m5 mini will reboot and connect to your home WiFi and cloud server.

Check WiFi and server status in the info or WiFi menu.

14:13
192.168.4.1

SmartPID Wi-Fi Configuration

WiFi Network:
 Select from List: smartpid Enter SSID: smartpid

Refresh

WiFi Password:
smartpid01

MQTT Broker Address:
mqtt.smartpid.com

MQTT Broker Port:
1883

MQTT TLS Connection

MQTT User Name:

MQTT Password:

Save

WiFi network selection

WiFi network password

Cloud server address

Cloud server credentials

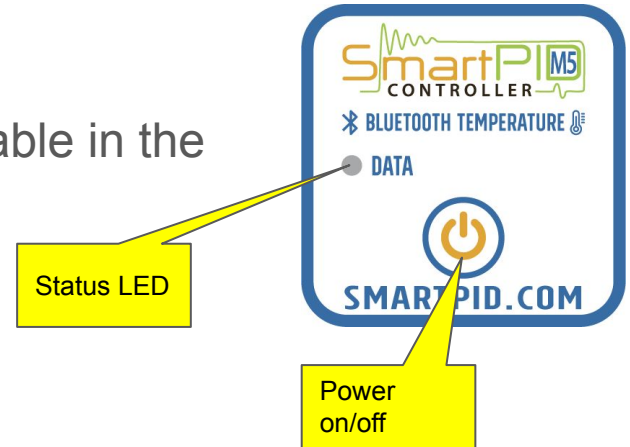
Shelly 2.5 relay pairing

- Navigate to the pairing menu
- Select Start procedure
- The shelly relay must be powered on (connected to AC)
- Select the Shelly2.5-xxxxx relay and pair
- Check the pairing status



Bluetooth temperature sensor pairing

- Navigate to the pairing menu
- Select “BT sensor” menu then perform “search”
- The BT-05 sensors must be powered on (press central button)
- Select the BT05-xxxxx sensor and confirm
- Check the pairing status in the “list” menu
- In the BT config menu you can configure
 - Sample Time
 - Transmission Power
- Once paired the sensor BT05-xxxxxx will be available in the setup/sensor type menu as any other sensor



LED indication status

LED in top left corner provides indications of the connections status and relay pairing

Status
Led



LED	WiFi	Cloud Server	Shelly
fast blink every 5s	OK	OK	OK
3 fast blink every 1s	Ok	KO	ANY
1s on 1s off	KO	KO	ANY
0.5s on 0.5s off	OK	OK	KO